



RO-003-001530

Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

February - 2019

**Paper - 502 : Intermediary Metabolism
(Old Course)**

Faculty Code : 003

Subject Code : 001530

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 Answer the following questions in just one or two : **20**
1. Write the end product of glycolysis during anaerobic conditions in muscles.
 2. Which metabolic pathway can convert liver glycogen into glucose in liver?
 3. Magnesium is required as a cofactor by which glycolytic enzymes? .
 4. What coenzyme form of vitamin B₁ is required by pyruvate dehydrogenase complex and 2-oxoglutarate dehydrogenase complex?
 5. Write the name of complex II of mitochondrial ETC.
 6. Which complex of mitochondrial ETC also requires copper ion ?
 7. Azide and carbon monoxide inhibits which complex of mitochondrial electron transport chain?
 8. Name the substance that act as a final electron acceptor in mammalian mitochondrial electron transport chain.
 9. Write the calorific value of cholesterol in human system.
 10. Give the name of alcohol present in glycerophospholipids.
 11. Name the enzyme involved in fatty acid synthesis in bacteria that is inhibited by Triclosan present in soaps and face wash.

12. What substance is acting as a precursor for synthesis of ketone bodies?
13. Name the amino acid that can be produced by transamination of pyruvate.
14. Write the end products of complete oxidation of proteins in human system.
15. What is calorific value for amino acids and proteins?
16. Name the amino acid that is acting as a precursor for synthesis of thyroid hormones.
17. Write the full form of HGPRT.
18. Define the term de nove pathway.
19. _____ is the end product of pyrimidine catabolism.
20. Write the full form of UTP.

2 (A) Answer any three of the following questions 6

1. Draw the structure of adenine and guanine.
2. Write the difference between purine and pyrimidine.
3. Describe ureotelic and uricotelic animals giving suitable examples.
4. Why protein is not a preferred as an energy source inside the human body?
5. Which complex of mitochondrial electron transport chain plays an important role in oxidation of FADH_2 ?
6. Extra carbohydrates are stored in what form and in which organs of human body?

(B) Answer any three of the following questions : 9

1. Write differences between hexokinase and glucokinase.
2. How activity of phosphofructokinase is controlled?
3. How ribose sugar is converted to deoxyribose sugar ?

4. Define uncouplers of mitochondrial oxidative phosphorylation system and write their examples.
 5. Write the reaction catalyzed by SGPT (ALT) and describe clinical significance of measuring SGPT activity in serum.
 6. Briefly describes the role of carnitine and carnitine acyl transferase in fatty acid metabolism.
- (C) Answer any two of the following questions 10
1. Write differences between glycolysis and gluconeogenesis.
 2. Write a detail note on synthesis of IMP from ribose-5-Phosphate.
 3. Write a short note on urea cycle.
 4. Discuss the beta oxidation of fatty acids.
 5. Discuss malate - aspartate shuttle for transport of NADH from cytosol to mitochondrial matrix.
- 3 (A) Answer any three of the following questions 6
1. What are the important functions of HMP pathway?
 2. What do you understand by nucleotide and nucleoside.
 3. Write the name of coenzyme of Vitamin B-6 and what is its role in transamination reactions?
 4. Describe ammonotelic organisms with suitable examples.
 5. Define ADP/O or P/O ratio.
 6. What are the metabolic fates of Pyruvate?
- (B) Answer any three of the following questions 9
1. Describe Cori cycle.
 2. Briefly discuss alcohol fermentation in yeast.
 3. Why citric acid cycle is referred to as a central metabolic pathway ?
 4. What are iron sulfur proteins and what is their role in mitochondrial ETC ?
 5. Define essential amino acids and give their examples.
 6. Explain conversions of IMP to AMP and GMP.

(C) Answer any two of the following questions : 10

1. Write a short note on glycogenesis.
 2. Write a detail note on catabolism of pyrimidine.
 3. Draw a labeled diagram of mitochondrial electron transport system showing arrangement of components of complexes I to IV.
 4. Write a short note on human pathway for fatty acid synthesis.
 5. What is the role of oxidative deamination of amino acids ? Write the reaction catalyzed by glutamate dehydrogenase.
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